Alternative Mutual Funds

An Initial Approach to Analyzing the Impact of Regulation on Fund Performance

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Abstract

This study seeks to examine the performance differences between regulated and unregulated investment funds. The funds studied are called alternative mutual funds by federal regulators, and are different than traditional mutual funds. Sponsors of these alternative mutual funds have increased their offerings to the investing public which has attracted regulators' attention. Regulators are assessing whether the current regulatory framework is sufficient for protecting investors. The objective of this empirical analysis is to determine the effect of regulations on the performance of these alternative mutual funds relative to unregulated funds of similar character. This type of study is a first step in examining the possible cost of operational regulation on investment fund performance.

This thesis begins with a history of investment fund regulation in the United States. The discussion moves to a review of the theoretical underpinnings of financial regulation for investment funds. After establishing the historical environment for the regulation, the report moves to an explanation of alternative investment strategies and follows with a description of their significant growth. The report summarizes the results of the empirical tests, and concludes with suggestions for future policymaker inquiry.

While the limitations of the data set constrict the explanatory power of this study, the results are indicative of the potential impact that regulations can have on the benefits that alternative mutual funds provide to investors. The SEC may be well advised to execute a large-scale analysis on the effect of the operational restrictions on alternative mutual funds versus comparable unregulated private funds. Insights gained might guide improvements in the regulatory structure for this growing sector.

Introduction

Topic Introduction

Since the 2008 financial crisis there has been significant growth in alternative mutual funds. Alternative mutual funds are defined as funds that invest in financial assets other than equity (stocks) and fixed income (bonds) products. Alternative mutual funds may use investment strategies that attempt to move in the opposite direction of the market (hedging for instance), or may have uncorrelated performance with the broader market.[9] The first mutual fund opened in Boston in 1924 as a type of investment company that pools money from different investors and invests in financial assets[2]. Traditional mutual funds use investment strategies that mainly consist of buying and holding either equity or fixed income products, where income accrues from cash flow, either interest or dividends, or from appreciation of asset prices. While, alternative mutual funds employ complex investment strategies with a variety of financial securities and derivatives that seek to generate returns from different sources. Historically, the types of investment strategies used by alternative mutual funds were only offered to institutional (e.g. endowments, pension funds, sovereign wealth funds) and ultra-high net worth (very wealthy) investors through a variety of private unregulated investment funds. However, increased retail investor demand for the potential superior-risk adjusted returns of alternative strategies[10], has led alternative mutual funds to become one of the fastest growing segment of the asset management industry. In response to this growth, the Securities and Exchange Commission (SEC) has undertaken a review process to determine what,

if any, regulatory modifications might be necessary to better protect investors of publicly-registered alternative investment funds.

Research Question

This study's main research question is: what differences, if any, arise in the risk and return characteristics of regulated and unregulated investment funds that use alternative investment strategies? The question has policy relevance because in January 2014, the SEC officially labeled alternative mutual funds as a "policy topic" which means the regulators are interested in learning more about the business practices and the application of existing fund regulation for alternative mutual funds.[11] In pursuit of this goal, the SEC launched an official inquiry of alternative mutual funds in August 2014, where the regulator sent a letter (sweep) to alternative mutual funds asking for more detailed information about their business.[12] This alternative mutual fund sweep is intended to help regulators examine the adaptability and compliance of existing investment fund regulation for alternative mutual funds. An answer to this study's research question may have relevance to the current SEC sweep because regulation may restrict a fund manager's flexibility to fully implement a particular strategy, limiting the potential benefits that might be offered by such management. Thus, it might be important to understand the impact of the regulatory environment so that the costs associated with investor protection, measured in forgone risk-adjusted returns for instance, are minimized. The fact that regulated and unregulated alternative investment funds now exist provides almost a natural experiment for testing the potential impact of regulation on investment fund performance.

Evolution of Investment Fund Regulation in the United States

Great Depression

The Great Depression was the start of the development of the modern financial regulatory system.[13] The severe market crash of 1929 and the resulting economic contraction caused more banks to depart from the banking business than any other instance in the history of the United States. From 1929 to 1933, the country lost approximately 10,000 banking institutions, as the number of depositories fell from 24,000 to 14,000.[14] Policy makers believed the collapse of the financial system contributed to the severity of the recession.[15] The Banking Act of 1933, also known as the Glass-Steagall Act (GSA), was one of the most comprehensive pieces of financial regulation legislation of its time. A separation of commercial from investment banking was imposed, requiring all major commercial banks to dispose of their securities affiliates. This change separated the riskiness of securities speculation out of the deposit holding commercial banks. In addition, commercial banks were prohibited from underwriting investment securities, purchasing bonds for the bank's own account, and using credit for the purchase of securities.

While GSA was intended to strengthen the banking system, the lack of investor protection regulation and disclosure requirements were also policy problems made apparent by the Great Depression.[15] In 1933 Congress passed the Securities Act, the first major piece of federal legislation to regulate the offer and sale of securities. The act's two objectives were to "require that investors receive financial and other significant information concerning securities being offer for public sale" and "to prohibit deceit, misrepresentation and other fraud in the

sale of securities." The legislation requires that all material information about a potential investment be disclosed to the investing public, so that the true nature and risks of the investment is understood by the investor. The Securities Exchange Act of 1934 was then enacted and, created the Securities and Exchange Commission (SEC). The SEC has "broad authority over all aspects of the securities industry."[16] All public companies are required to submit periodic financial statements, or face the penalty of perjury. [15] The SEC is the primary regulator of alternative mutual funds, and all other investment funds such as traditional mutual funds.

Post World War II

The Securities Act of 1934 gave the SEC the authority to establish financial accounting standards for publicly held companies. Until 1973, the SEC relied upon the Accounting Principles Board (APB), an organization of industry accountants working part-time, to create corporate accounting standards.[15] In 1973, the Financial Accounting Standards Board (FASB) was formed as a fully independent organization to establish the standards of financial accounting for the financial reports of public corporations. FASB states that their standards "are important to the efficient functioning of the economy because decisions about the allocation of resources rely heavily on credible, concise, and understandable financial information."[17] This was an important step for investor disclosure because FASB strengthened the generally accepted accounting principles (GAAP) used by all US public corporations.[17]

In 1974, Congress created the Commodity Futures Trading Commission (CFTC), to replace a division of the Department of Agriculture that regulates commodities exchanges. The CFTC

has the “authority to regulate futures trading in all [commodity] goods, articles, services, rights, and interests traded for future delivery.” A futures contract is an agreement to purchase or sell a specific quantity of a commodity (e.g. grains, metals) or other financial product (e.g. U.S. currency) at a specified price and date.[18] The CFTC ‘s mission is to, “protect market users and the public from fraud, manipulation, and abusive practices in the sale of commodity and financial futures and options, and to foster open, competitive option markets.”[7] While the SEC administers and enforces the investment fund regulation, the CFTC regulates the trading of the underlying futures contracts that some investment funds use to generate returns.

The 1980s and 1990s brought a period of deregulation to financial markets in the United States. A succession of policy changes reduced the operational restrictions of financial institutions, and allowed them to expand into new lines of business that had been restricted since the Great Depression.[15] The Gramm-Leach-Bliley Act (GLBA), also known as the Financial Services Modernization Act of 1999, repealed the Glass-Steagall Legislation of the Great Depression that separated commercial and the investment banking.[19] The GLBA allowed financial institutions to form one holding company that could engage in all three activities of commercial banking, investment banking, and insurance underwriting.[20] The GLBA at the time it was passed was seen as a way to help American banks grow larger, so they could better compete in the global economy. [21] Aligned with the same deregulatory ideology, Congress passed the Commodity Futures Modernization Act which limited the CFTC’s and SEC’s oversight of the derivatives market, decreasing the regulatory burden on those respective funds, and decreasing investor protection regulation. [15]

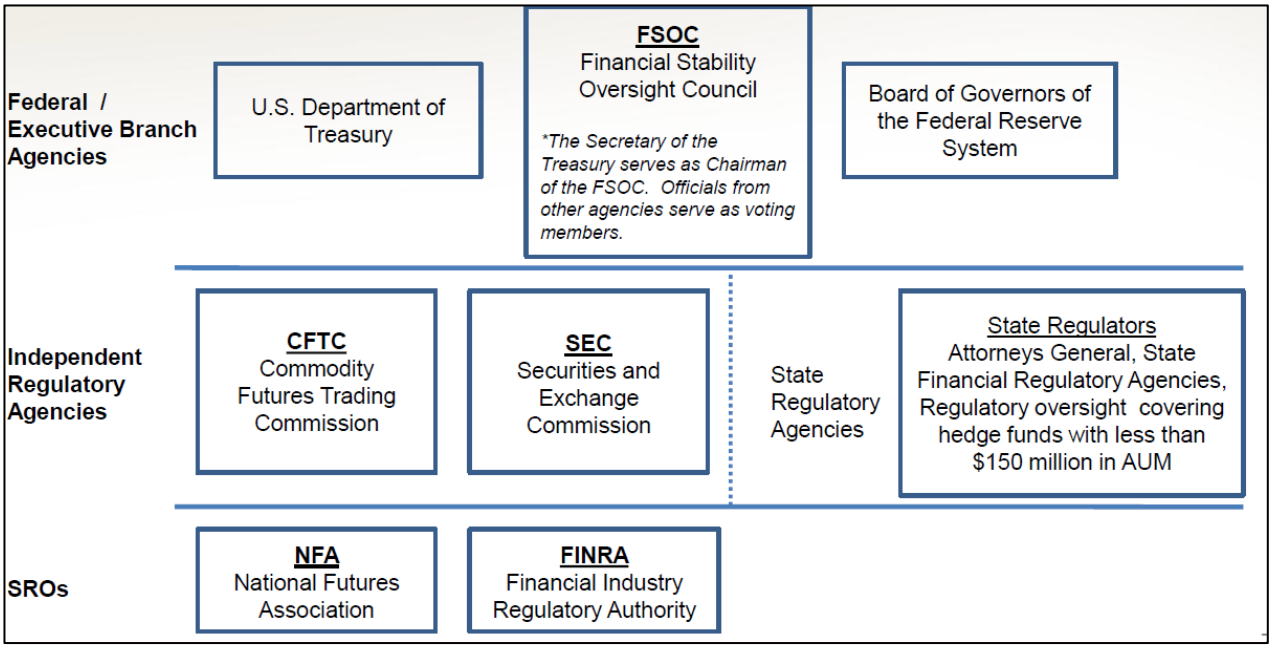
In response to several financial scandals and devious accounting practices from large corporate bankruptcies such as Enron, WorldCom and Tyco; congress passed the Public Company Accounting Reform and Investor Protection Act, or Sarbanes-Oxley (SOX), in 2002.[22] SOX was aimed at enhancing the auditing practice of public corporations in the United States. The Act's major provisions include the prohibition of preferential disclosure to market analysts and the requirement of public corporations' CEOs and CFOs to sign their company's financial statements submitted to the SEC and accept personal liability for fraudulent information. SOX also mandated that all public companies have an independent board of directors.[15] The Act created the Public Company Accounting Oversight Board (PCAOB), which enlisted a team of auditors "to enforce and existing laws against theft and fraud by corporate officers" and to set the standards for the inspection and investigation of public companies' audit firms. [22] Additionally, SOX empowered the SEC to review the accounting standards set by the FASB. SOX was intended to "restore [investor] confidence" through "strengthening the financial reporting" and "generally raising the bar" for US's public companies.

Post 2008 Financial Crisis

The 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank), reconstructed many parts of the financial regulatory system in response to the perceived abuses claimed to be partially responsible for the 2008 financial crisis.[15] One integral part of the Act is The Volcker Rule, which prohibits proprietary trading and certain fund activities at investment banks, while enhancing the capital requirements and imposing increased regulation on systemically important nonbank financial companies. The Volcker Rule repealed parts of the

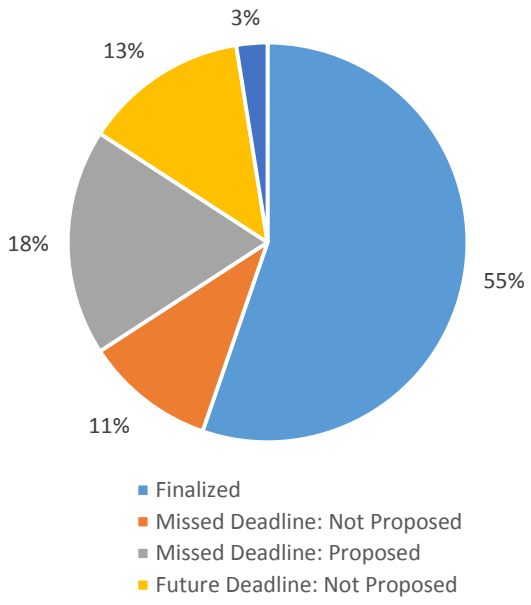
Gramm-Leach deregulatory legislation by imposing restrictions on commercial and investment banking activities, similar to those enacted by the Glass-Steagall Act in 1933.[15] Dodd-Frank also mandates the formation of the Financial Stability Oversight Council (FSOC) as a division under the Treasury Department. The FSOC is "charged with identifying risks to the financial stability of the United States; promoting market discipline; and responding to emerging risks to the stability of the United States' financial system."[23] Regulators developed a new regulatory framework for financial supervision around the newly created FSOC. Under this new framework (Exhibit 1), federal agencies and self-regulatory organizations (SROs) coordinate on multiple levels to monitor and regulate financial services to provide investor protections, promote effective capital markets and address issues that could pose a "systemic risk" to the financial system and the economy.

Exhibit 1: New Fund Regulatory Framework Post '08 Financial Crisis [7]



While lawmakers are generally lagging behind in the process of implementing the new rules and regulations from the Dodd-Frank legislation (Exhibit 2), regulators have finalized all seven rules relating to investment advisers / private funds and have a finalized a majority of the 11 rules related to investor protection / security laws. [3] Furthermore, in 2012, Congress passed section 201 of the Jumpstart Our Business Startups (JOBS) act. This section of the JOBS act amended an existed rule under Regulation D of the Securities Act of 1933, which removed the ban on general solicitation and advertising by companies conducting private offerings, including hedge funds, provided that securities are only sold to "sophisticated investors." [7] This was a new step in allowing private funds to market to a larger audience.

Exhibit 2: Dodd-Frank Rulemaking Progress [3]
(October 2014)

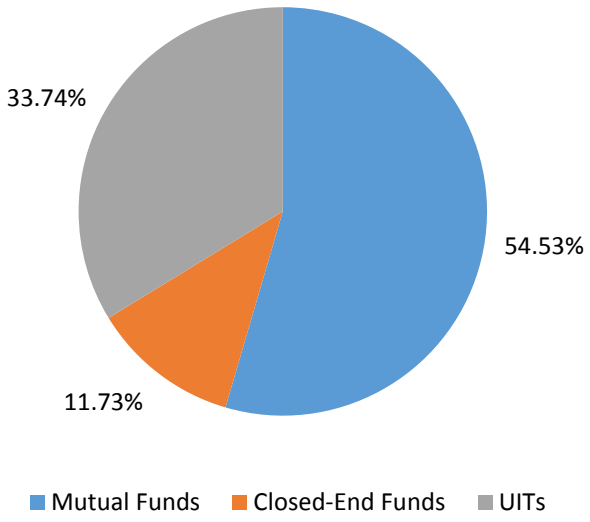


Current Regulatory Environment

Regulated Funds Overview

The SEC defines an "investment company" as a company that issues securities and is primarily engaged in the business of investing in securities.[24] Additionally, an "Investment Company invests the money it receives from investors on a collective basis, and each investor shares in the profits and losses in proportion to the investors' interest in the investment company. The performance of the investment company will be based on (but it won't be identical to) the performance of the securities and other assets that the investment company owns."[24] Federal security laws categorize investment companies into three structures: mutual funds (legally known as open-end companies), closed-end funds (legally known as closed-end companies) and UITs (legally known as unit investment trusts).[24] Each fund structure has different regulations that govern their operations. The mutual fund structure is the preferred structure, with a majority of the over 16,000 investment companies registered with the SEC in 2013 structured as mutual funds (Exhibit 3)[2].

Exhibit 3: 2013 Investment Company Breakdown [2]



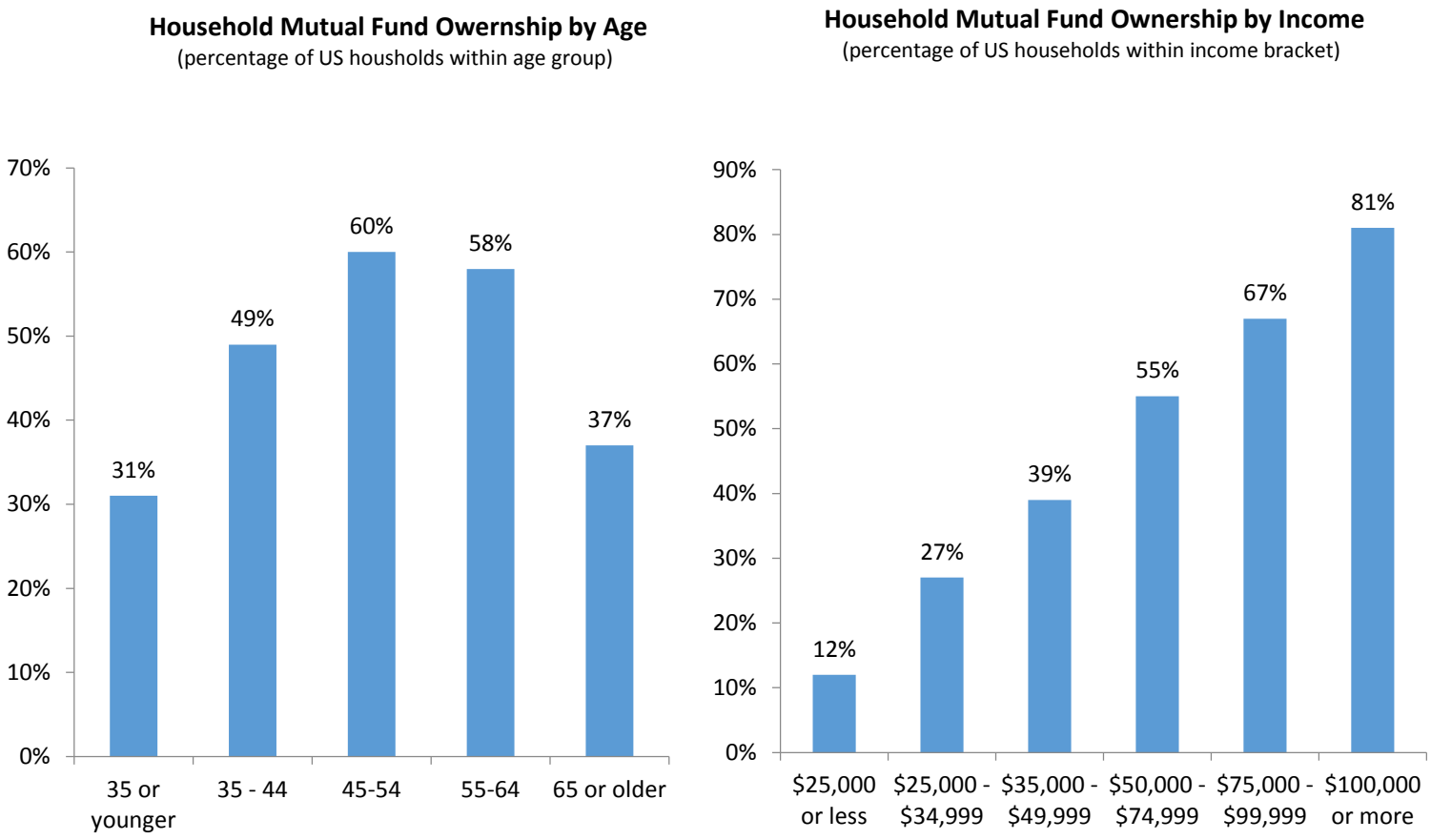
There are four principle securities laws that govern investment companies: the Investment Company Act of 1940 ('40 Act), the Securities Act of 1933, the Securities Exchange Act of 1934, and the Investment Advisers Act of 1940. These four laws are summarized in Exhibit 4. This study primarily focuses on the '40 Act because it is the law "that regulates the structure and operations of investment companies through a combination of disclosure requirements and restrictions on day-to-day operations."[2]

Exhibit 4: Four Principal Securities Laws that Govern Investment Companies[7]

Law	Description
Securities Act of 1933	The 1933 Act includes a number of provisions to strengthen investor protections and the integrity of securities markets. The Act requires the registration of publicly offered securities, providing limited exemptions for certain offerings, including: private offerings to a limited number of sophisticated persons or institutions; offerings of limited size; intrastate offerings; and securities of municipal, state, and federal governments.
Securities Exchange Act of 1934	The 1934 Act created the SEC, providing it with broad authority to register and regulate the securities industry. The Act also defines and outlaws certain types of market behavior and provides the SEC with the power to discipline regulated entities and other persons who trade in the securities markets. The Act also regulates the secondary trading of securities, as well as the physical exchanges where securities are traded.
Investment Company Act of 1940	The ICA defines what constitutes an investment company under U.S. law. The ICA establishes guidelines to regulate and organize companies engaged in investing, reinvesting and trading in securities. Provisions in the ICA impose strict disclosure requirements, place limits on the investment strategies and holdings of registered investment companies (RICs), and rules regarding the structure of RICs. Hedge funds are not generally subject to regulation under the ICA as they are excluded from the definition of "investment company" in the ICA.
Investment Advisers Act of 1940	The Advisers Act generally requires persons and firms receiving compensation for providing advice about securities to register with the SEC, including hedge fund managers with at least $150 million in assets under management. Advisers must register using Form ADV, which includes pertinent background information on the individual adviser as well as the type of investment advice to be offered. Form ADV must be updated at least annually with the SEC.

The ’40 Act imposes regulations on the investment strategy and asset allocation of mutual fund investment companies. Specifically, a mutual fund cannot invest more than 15 percent of its net assets in illiquid securities, must maintain asset coverage (an assets to equity ratio) of at least 300 percent or comply with mutually agreed upon alternative asset segregation requirements, maintain daily liquidity requirements (shares can be redeemed for cash daily), and they must provide a daily net asset value (NAV) to investors.[25] Mutual funds are distributed to investors through five channels described below: (1) the direct channel, (2) the advice channel, (3) the retirement plan channel, (4) the supermarket channel, and (5) the institutional channel. [26] The first four channels serve individual investors, while the institutional channel serves institutional investors (e.g. pensions, foundations, endowments). The direct channel involves individual investors placing orders directly with mutual fund companies; the advice channel involves financial advisors and registered representatives placing orders with mutual fund companies on behalf of individual investors, the retirement plan channel consists of employer-sponsor defined contribution plans where employers or plan sponsors purchase mutual funds on behalf of individual investors, and the supermarket channel where individual investors use discount brokers to purchase mutual funds on their behalf.[26] According to the Investment Company Institute (ICI), in 2013, 46 percent of all U.S households owned mutual funds[2], with the greatest amount of relative ownership in the 45 to 54 age group, and in the household income bracket of $100,000 or more (Exhibit 5).

Exhibit 5: 2013 US Mutual Fund Ownership Breakdown by Age and Income [2]

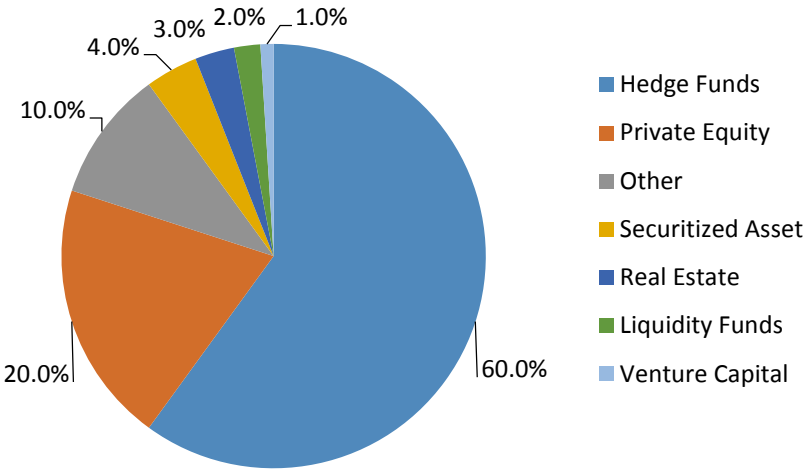


Unregulated Funds

Certain private funds are excluded from the definition of an investment company, and therefore do not have to be registered under the Investment Company Act of 1940. As shown in Exhibit 6, hedge funds, followed by private equity funds, hold the majority of all private funds registered with the SEC.[7] All hedge funds with more than $150 million in assets under management (AUM) are required to register with the SEC. Private funds use sections (3)(c)(1) and 3(c)(7) of the '40 Act to allow them to avoid operational fund regulation with the SEC in return for a restricted investor base [27] This gives private funds greater operational flexibility and leaves them with no regulatory restrictions on investment strategy leverage, fee

arrangements, liquidity requirements and portfolio distributions.[28] Private funds typically have monthly or quarterly liquidity (as opposed to daily for mutual funds) for investors and report a monthly net asset value (NAV) as opposed to a daily NAV for mutual funds.[29] The distribution channels for private funds are also different, being more decentralized than mutual fund channels. Investors find private funds through channels such as investment consultancies, investment funds that invest in private funds, and investment bank introductions. Potential purchases of private funds are limited to "accredited investors" and "qualified purchasers."[29] An accredited investor is defined as a sophisticated investor who is deemed to have less of a need for government disclosure protection.[30] Examples of accredited investors includes organizations with total assets in excess of five million, financial services companies such as banks, employee benefits plans with assets in excess of five million, an individual whose net worth or joint net worth exceeds one million at the time of purchase excluding the value of the individuals primary residence, and individuals' with yearly incomes of $200,000 or higher in each of their two most recent years or joint income with a spouse exceeding $300,000 for those years and a reasonable expectation of the same income levels in the current year.[7] The '40 act defines a

Exhibit 6: Breakdown of Private Funds Advised by Registered Advisers[7]



"qualified purchaser" as an individual or married couple with over five million in investment assets, or an institutional investor who invests on a discretionary basis at least $25 million.[31]

Justifications for Investment Fund Regulation

Financial Stability

Financial stability is a primary motivation for financial services regulation. Financial stability can be thought of as "institutions not suddenly collapsing and causing economic damage to people who not reasonably would have been expected to anticipate the collapse."[32] Financial stability is a major concern of policymakers for two reasons. An unstable financial system will inflict undue harm to the general public in times of economic distress.[32] Additionally, one primary function of the financial system is to serve as an intermediary between those wishing to invest capital for a rate of return and those wishing to utilize the capital productively to generate such a return on investment. Financial instability can disrupt this access to credit for market participants, as witnessed in the 2008 financial crisis,[33] and thus may have a significant impact on economic growth.

Policies to promote financial stability can be segmented into two different groups: preventive measures designed to promote behavior conducive to financial stability, and remedial measures designed to contain the impact of an actual or threatened outbreak of financial instability.[32] Examples of preventative policy measures include laws enacted through congress, rulemaking through government agencies and regulators, and data publication and economic forecasts by central banks. Remedial public policy responses to financial instability

often take the form of the government serving as the "lender of last resort" to systemically important financial institutions during a crisis. A "lender of last resort" is defined as a government institution, normally a central bank, which offers loans to banks or other eligible institutions that are experiencing financial difficulty during times of crisis. The "lender of last resort" policy has been used by the U.S. government in the case of a distressed investment firm. For instance, in 1998, the Federal Reserve orchestrated a $3.65 billion capital infusion to the investment firm Long-Term Capital Management (LTCM) from a consortium of financial institutions[34]. LTCM's excessive use of leverage (debt), and declining investment positions in the fall of 1998, made it impossible for the LTCM to meet its margin calls (pay the interest on its debt), and caused fears of bankruptcy by creditors[35]. Alan Greenspan, the Chairman of the Federal Reserve during the fall of 1998 explained the Fed's decision to facilitate the bailout of LTCM as:

> "In situations like this, there is no reason for central bank involvement unless there is a substantial probability that a fire sale would result in severe, widespread, and prolonged disruptions to financial market activity..... It was the FRBNY's [the Federal Reserve] judgment that it was to the advantage of all parties—including the creditors and other market participants—to engender if at all possible an orderly resolution rather than let the firm go into disorderly fire-sale liquidation following a set of cascading cross defaults."[35]

The LTCM decision was an important precedent in the government's interaction with investment funds. As published in a U.S. Government Accountability Office (GAO) report on LTCM, "Although no federal money was committed to the recapitalization, FRBNY's intervention raised concerns among some market observers that it could create moral hazard by encouraging other large institutions to assume greater risks, in the belief that the Federal Reserve would intervene to avoid potential future market disruptions."[36] The GAO's

comments reflect the moral hazard dilemma that policymakers face with using lender of last resort policies to maintain financial stability.

Cost-Benefit Discussion

The tradeoffs between financial stability regulation and other public policy objectives must be considered when analyzing the efficacy of financial services regulatory policy. In regards to preventive policies for promoting financial stability, the benefits of the reduced probability of financial instability, must be balanced with the costs that stricter regulations may have on the availability and pricing of credit and liquidity.[37] Put another way, the benefit of increased regulation in terms of tighter capital standards or greater restrictions on the activities a financial institution may undertake should be weighed against the greater imposed costs of compliance and/or lower returns for investors. Capital requirements are standardized requirements for banks and other depository institutions, which determine how much liquidity (cash) is required to be held for a certain level of assets by regulatory agencies.[38] The question of governments providing emergency liquidity to struggling financial institutions during times of instability, builds off the cost benefit analysis of inducing moral hazard versus the potential for financial instability resulting from an institution's failure. Policymakers in the US have historically approached the topic of providing emergency liquidity, or acting as a lender of last resort, on a case by case basis, as apparent from the LTCM government-led bailout.

Investor Protection Rationale

Investor protection is another rationale for financial services regulation, and is the underlying justification for a majority of investment fund regulation.[31] Investor protection regulation may be designed to help investors overcome informational asymmetries that may influence market efficiency.[39] An information asymmetry is a situation in which one party in a transaction has more or superior information compared to the other party.[40] These informational asymmetries are inherent in relationships where investors rely on others to manage a portion of their investment portfolio. Such asymmetry is the basis for the principal-agent problem that may occur between investors and their investment fund manager. In a principal-agent relationship, the principal (investor), with a predefined objective, assigns a task to an agent (investment fund manager) to perform the task on the principal's behalf. If the principal's incentives are not clearly aligned with that of the agents, and if the principal cannot monitor the agent's action, then the agent has the rationale motivation to act undetected in his own interests as opposed to the principal's interests.[41] For the principal-agent relationship to become problematic both a conflicting incentive structure and informational barriers must be present. [41] To illustrate this principal-agent dilemma imagine an entrepreneur with a business and a potential investor. The entrepreneur has better information than the investor about the value of his business, illustrating the information problem. While if the potential investor decides to invest, then the entrepreneur has a greater incentive to expropriate more of the investors savings by misrepresenting the value of his business. In an effort to profit from his informational advantages, the entrepreneur is exploiting his agency position. [42] Such actions may be a policy concern because modern capital markets hold a substantial amount of a

household's savings,[43] so it critical that material information be publicly disclosed in order to promote efficient capital markets.[42]

Cost-Benefit Discussion

It is the regulator's job to balance the cost of doing nothing to protect investors against the perceived benefits of proactive intervention to protection them.[28] There are direct bureaucratic costs, compliance costs, market rigidities due to regulatory barriers, and distortions of economic incentives for market participants when regulation is enacted for investor protection. Another potential significant cost of investor protection regulation is that it can prohibit a segment of investors from investing in certain types of investment products, which can lead all members of this investor segment to a less desirable product.[28] Professor Franklin Edwards of Columbia Business School believes that hedge funds, a type of private fund, are an example of this cost of investor protections. Professor Edwards believes that hedge funds "unencumbered by regulatory restrictions on short selling, leverage, fee arrangements, liquidity requirements and portfolio distributions constraints " are able to" utilize trading strategies not typically available to retail investors, relegating these [retail] investors largely to investment products provided by mutual funds." He continues that the investment operational flexibility of hedge funds "may be able to provide investors with better downside-protection against precipitous falls in asset (stock) price" and by "blocking retail investor access to hedge funds [through regulation], [regulation] may impose significant costs on the excluded investors by forcing them into inferior investment products, which must be balanced against the potential benefits of protecting investors against losses they might occur if they were to invest in hedge funds."[28] This study seeks to build on the idea discussed by Professor Edwards, by

attempting to determine if regulatory constraints impose costs on alternative mutual funds in terms of risk or return metrics.

Alternative Investment Fund Overview

Investment Strategies

Prior to the 2008 financial crisis, a majority of investment funds using alternative investment strategies were private unregulated funds characterized by their limited transparency, illiquidity, high investment minimums, and inaccessibility to the retail investor.[4] However, the alternative investing landscape has evolved, and investors can now access alternative strategies through a daily liquid and highly transparent mutual fund structure.[4] Alternative strategies differ from "traditional" investment strategies in their exposure to different asset classes, and in the trading strategy they use to generate returns. While traditional investment strategies will typically invest in only stocks and bonds, examples of the asset classes used by alternative strategies includes currencies, commodities or real estate. While the investment strategy of a traditional fund would typically buy and hold a security with the hopes of price appreciation (going long), the investment strategies of alternative funds will commonly bet on both price appreciation and depreciation (long/short). The main purpose of alternative investment funds within an individual's portfolio "is to add a complementary source (or sources) of return: one that doesn't necessarily move in lock-step with traditional long-only assets, whether they be equities or fixed income."[4] While the performance of many traditional mutual funds is compared on a relative basis to the performance of the broader market, the

performance of alternative investment funds is measured against peer funds or a cash benchmark, which reflects the potential diversifying benefit of alternative investment strategies.[4] Copied in Exhibit 7 is a summary of the major alternative strategies used currently in financial markets. These definitions are provided by AQR Capital Management (AQR), one of the largest alternative investment fund managers. It is important to take notice that "capturing mispricing" is a frequently used term to describe alternative investment strategies in Exhibit 7. The absolute return performance of alternatives is only possible, in part, because these funds attempt to capture mis-pricings in varying economic conditions.

In theory, alternative investment strategies allow investors to access "style premia" they did not have prior exposure to through traditional investment strategies. Style premia are defined as a "risk premiums" that arise from some "economic intuition or a behavioral explanation of why an investment should carry an excess return."[44] [4] To have increased exposure to these style premias, investors need the dynamic and flexible strategies of alternative investment funds. The expanded set of investment options (alternative asset classes) is one way funds attempt to capture these premias. The ability to hedge (reduce the risk of adverse asset price movements) via short positions and other arbitrage techniques are another way alternative investments are potentially able to offer diversified returns from traditional mutual funds.[45]

Exhibit 7: Summary of Alternative Strategies[4]

Objectives of Major Alternative Strategies	
Convertible Arbitrage	Capture the discount of convertible bonds relative to the fair value of their constituent parts (bond + equity call option)
Dedicated Short Bias	Profit from the inability of many investors to go short companies that are overpriced relative to their fundamentals
Emerging Markets	Pursue strategies including Global Macro and various equity strategies by trading securities and currencies of emerging markets
Equity Market Neutral	Capture systematic mispricing in global equity markets, typically between different stocks in the same sector
Event Driven	Trade mispriced securities whose value should converge in a corporate event
Fixed Income Arbitrage	Capture a range of mis-pricings in global bond and currency markets, including those created by market participants who are not profit-maximizing
Global Macro	Capture mis-pricings across major global asset classes, including stock, bond, currency, and commodity markets
Long/Short Equity	Pursue a range of opportunities in global stock markets, including relative value between sectors and growth-based stockpicking
Managed Futures	Profit from the tendency of assets to exhibit short- and long-term trends

The benefits of alternative strategies were examined by AQR. Researchers at the investment management company recreated hypothetical portfolios of possible investments under a merger arbitrage (event driven) alternative investment strategy. The rationale behind a merger arbitrage strategy is that by purchasing the shares of the acquired company and selling short the shares of the acquiring company in an announced merger agreement, the investor now has access to a risk premium through providing insurance to the existing stockholders of the acquired company wishing to sell their shares.[46] AQR also created a hypothetical portfolio of investments under a convertible arbitrage alternative investment strategy, which seeks to profit from the liquidity premium (or added return investors expect to get paid) of owning convertible bonds, as opposed to owning corporate bonds or equity in traditional investment strategies.[46] The two alternative investment portfolios were designed by creating a value-weighted portfolio of AQR's proprietary samples of merger deals since 1963 and convertible bond issues since 1985. The merger arbitrage portfolio had a leverage ratio (the amount of debt relative the fund's assets) at 1.5:1 and the convertible bond portfolio had leverage of 2:1.[46] The sample portfolio returns and volatility (standard deviation of returns) were calculated from January 1990 to December 2007. AQR's test results are contained below in Exhibit 8.

Exhibit 8: Summary of AQR Alternatives Analysis[4]

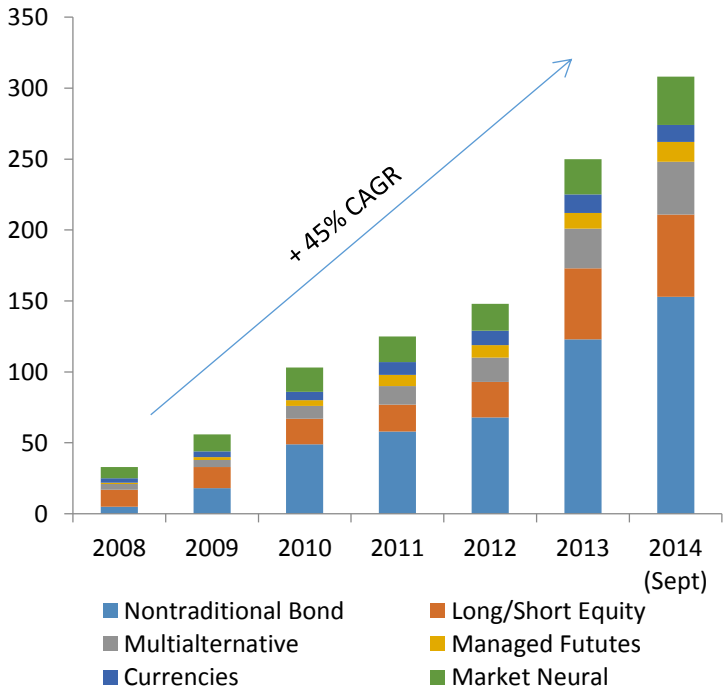
				Correlations	
	Annualized Return	Annualized Volatility	Coefficient of Variation	S&P 500	MSCI World
Convertible Arbitrage	12.00%	5.20%	0.43	0.00	-0.10
Merger Arbitrage	11.80%	5.80%	0.49	0.40	0.40
S&P 500	10.70%	13.60%	1.27		
MSCI World Index	8.10%	13.60%	1.68		

AQR's findings indicate that the two alternative strategies profiled in their study (convertible arbitrage and merger arbitrage), might have had greater returns and less volatility than traditional equity investments, both in the United States (S&P 500) and globally (MSCI World Index) from 1990 to 2007. On a risk-adjusted basis, represented by the coefficient of variation (annualized volatility / annualized return), both alternative strategies appear to require less risk to generate the same return compared to traditional equity investments. The performance of convertible arbitrage does not appear to be correlated with either market index, while the performance of merger arbitrage has a correlation of .4 with both market indices. One of the study's limitations is the absence of statistical tests analyzing the significance of the differences in performance between alternative and traditional investment strategies. However, the results of AQR's study are still constructive for the discussion on alternative investment strategy performance because it is unique that an investment firm with such proprietary data publishes its research for public discourse.

Fund Growth

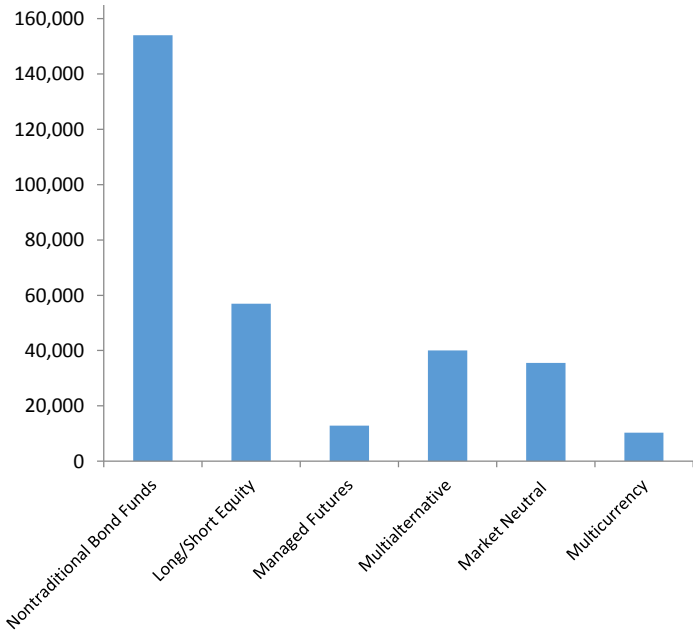
As shown in Exhibit 9, total assets under management (AUM) in alternative mutual funds has grown from under $50 billion in 2008, to $250 billion in 2013[5], equating to a compounded annual growth rate (CAGR) of over 40% for the five year time frame. Alternative mutual fund AUM growth has

Exhibit 9: Alternative Mutual Fund Growth[5]
(AUM, $ Billions)



outpaced the growth of traditional investments, which grew at a CAGR of 8.39% over the same time period.[10] The first half of 2014 continued to see strong growth in alternative mutual funds with nearly $17 billion of inflows through July 2014.[47] Industry experts forecast this trend of strong alternative mutual fund growth to continue well into the future. For instance Goldman Sachs estimates that retail alternatives will maintain a growth rate of 15-20% over the next ten years[48]. In addition, Mckinsey & Company forecasts that by 2020 alternatives will comprise up to 15% of global assets under management, and 40% of asset management industry revenues, up from their current levels of 12% of global assets and 30% of industry revenues.[10] Finally, the German financial services firm Deutsche Bank in their September 2014 research study entitled - *From Alternatives to Mainstream (Part Two*) - found that liquid alternatives are the fastest growing part of the asset management industry with 67% of investors planning to increase their allocation to alternative strategies by 2015, and 30% of hedge fund managers planning to launch an alternative mutual fund in the next year.

Exhibit 10: Alternative Mutual Fund Net Assets[8]
($ Billions, October 2014)



The six largest alternative mutual fund investment strategies might be classified into mutually exclusive groups. As broken down by strategy in Exhibit 10, collectively these six largest investment strategies held about 2.3% of the nearly $14 trillion in assets under management held by all mutual funds in the

United States.[8] The two largest alternative investment strategies, Long/Short Equity and Nontraditional Bonds, grew at an rate of 80.96% and 79.43% respectively in 2013.[49] Exhibit 11 contains a listing of mutual fund managers that hold the greatest market share in the six largest alternative mutual fund segments. It is worth noting that the top four alternative mutual fund managers rank in the top 20 mutual fund investment organizations by assets under management[8], so while inflows in alternative mutual funds has been significant, over 40% of these inflows have gone to established and experienced investment managers.

Exhibit 11: Alternative Mutual Fund Manager Market Share [1]
(AUM, $ Millions)

Firm	Marketshare	Assets ($M)
PIMCO	12.02%	37235
BlackRock	10.09%	31246
Goldman Sachs	9.37%	29023
JP Morgan	8.65%	26794
New York Life	5.18%	16036
Natixis	3.95%	12224
AQR	3.51%	10866
John Hancock	2.96%	9157
Putnam	2.69%	8335
Robeco Investment Management	2.02%	6255

Policy Environment

In January 2014 the SEC's Office of Compliance, Inspection, and Examinations (OCIE) labeled Alternative Funds as a policy topic in their examination priorities for the year. The label of policy topic means that the SEC has a dual interest in gaining a better understanding of business practices in the alternative mutual fund space, and about learning the practical application of previously adopted rules and guidance for alternative mutual funds.[11] In regards to fund structure, OCIE is focusing on alternative mutual funds "leverage, liquidity and valuation policies and practices" as well as "the [alternative mutual fund's] staffing, funding, and

empowerment of boards, compliance personnel, and back-offices."[11] In connection with the end investor, the SEC is focusing on the "the manner in which [alternative mutual] funds are marketed to investors," in respect to "the representation and recommendations made regarding the suitability of such investments."[11] The suitability of an investment refers to rule 2111 enforced by the self-regulatory organization the Financial Industry Regulatory Authority (FINRA), which requires brokers and associated professionals to "have a reasonable basis to believe that a recommended transaction or investment strategy involving a security or securities is suitable for the customer, based on the information obtained through the reasonable diligence of the [firm] or associated person to ascertain the customer's investment profile."[50] This release by the OCIE set the framework for the SEC's focus on alternative mutual funds. [47]

The SEC held their Compliance Outreach Program National Seminar for Investment Advisers and Investment Company's following the release of the 2014 exam priorities where a panel of regulators further clarified their areas of potential concern with alternative mutual funds.[5] The panel built upon the focus areas described in the released, and added two potential concerns about (1) the use of a private fund's prior performance to market a new alternative mutual fund that uses a similar strategy and (2) how alternative mutual funds are generally explained to the investing public.[47] The performance issue stems from the fact that some alternative mutual fund managers, who have managed similar strategies in a private unregulated investment fund, are using the prior performance of their private unregulated investment fund to market their alternative mutual fund that must now comply with the operational restrictions of the Investment Company Act of 1940. FINRA restricts this practice of

using private fund performance to market a public mutual fund.[5] The SEC panel also cautioned that alternative mutual fund managers "should not try to over-simplify the fund's risks, as investors need to understand a fund's complexities for it to be a suitable investment."[47] In March 2014, the OCIE announced that it was finalizing plans to conduct a national sweep exam of alternative mutual funds, with the first phase targeting 15 – 20 funds. The SEC reiterated that the sweep will focus on the same areas of liquidity, leverage, and board oversight as dictated in the initial OCIE release. The goals of the sweep is to examine alternative mutual fund compliance with the Investment Company Act of 1940 and analyze the effectiveness of the regulations for such funds.[51]

In June 2014, the SEC's director of its Division of Investment Management, Norm Champ, gave the most extensive discussion about alternative mutual funds from a federal regulator in a speech to the Practising Law Institute.[6] Excerpts of Champs recommendations for alternative mutual fund compliance with the valuation, liquidity, leverage, disclosure, and board oversight regulations of '40 Act are displayed in Exhibit 12. These recommendations, are primarily guidance from Director Champ to the alternative mutual funds to assess their overall '40 Act compliance. For example, Director Champ recommends alternative investment funds implement improved policies regarding the determination of the fair value of investments in order to address the daily valuation requirements of the '40 Act. The purpose of this piece is to supplement the SEC in their examination of alternative mutual fund regulation compliance by offering a framework to evaluate a potential market cost of regulation for investment funds.

Exhibit 12: Commentary on Alternative Mutual Fund Regulatory Compliance[6]

	Summary
Valuation	"Issues that alternative mutual fund managers may consider addressing in their policies and procedures include: (1) the requirement that the fund monitor for circumstances that may necessitate the use of fair value prices, (2) the provision of a methodology by which a fund determines fair value, (3) the process for price overrides, (4) assurance that controls are in place to review, monitor and approve all overrides in a timely manner, and (5) the prompt notification to, and review and approval by, persons not directly involved in portfolio management to mitigate conflicts of interest."
Liquidity	"Among the factors that an alternative mutual fund may want to consider in assessing a portfolio security's liquidity are: (1) the frequency of trades and quotations for the security; (2) the number of dealers willing to purchase or sell the security and the number of other potential purchasers; (3) dealer undertakings to make a market in the security; and (4) the nature of the security and the nature of the marketplace in which it trades. These liquidity issues are particularly important if the alternative mutual fund discloses that it is pursuing a strategy that focuses on illiquid securities such as distressed debt securities."
Leverage	"To address some of the risks associated with leverage used by alternative mutual funds, investment advisers may want to consider taking some additional steps when engaging in derivatives transactions. These advisers may want to consider putting in place a risk management framework linked to their funds' use of derivatives, which may include assessing the impact of various market conditions on the funds with respect to their use of derivatives."
Disclosure	"Staff generally believes that all funds that use or intend to use alternative investment strategies should assess the accuracy and completeness of their disclosure, including whether the disclosure is presented in an understandable manner using plain English. Further, any disclosure of principal investment strategies related to alternative investment strategies generally should be tailored specifically to how a fund expects to be managed and should address those strategies that the fund expects to be the most important means of achieving its objectives and that it anticipates will have a significant effect on its performance."
Board Oversight	"The fund board should know its '40 Act obligations to continue to review and approve the fund's policies and procedures to ensure they are reasonably designed to prevent violations of the federal securities laws, and in particular the policies and procedures used with regard to the '40 Act areas previously discussed, such as valuation, liquidity, leverage, and disclosure...boards should take care that, when naming alternative mutual funds, their names are not misleading...accordance with the '40 Act, if an alternative" fund's name suggests a focus in a particular type of investment, the fund needs to have a policy to invest at least 80% of its assets in that investment."

Empirical Implications of Differences between Regulated and Unregulated Funds

Methodology

Research Question:

Does regulation affect fund performance? What differences, if any, arise in the risk and return characteristics of regulated and unregulated investment funds that use alternative investment strategies?

This analysis was designed to test for the performance differences between alternative mutual funds and private funds.

Method:

Two comparable data sets were created of 36 monthly percentage returns for samples of private funds and alternative mutual funds across the six largest alternative investment strategies. Four performance metrics were calculated from each sample of private funds and mutual fund returns: average monthly percentage return, average monthly standard deviation of returns, the coefficient of variation over the 36 month time period, and the beta compared to a broad market index. The beta coefficient is defined as the covariance of a fund's returns with the market returns, typically the S&P 500, divided by the variance of the market returns.[52] The beta is a measure of the degree to which higher market returns lead to an expectation of higher security (investment funds) returns.[52] For example, an investment fund with a beta of two implies that given an observed market return of 10 percent, the expected return of the investment fund would be 20 percent.[52] The coefficient of variation (CV) is a normalized measure of risk-adjusted returns for investment funds[53]. It is a unit free number that can be

used as a basis for comparison. For instance, if the CV of asset A is 1 and CV of asset B is ½ then Asset B requires less risk per unit of return but it may be the case that the expected return of asset B is 2% while the expected return of Asset A is 20%. Exhibit 13 summarizes the significance of these four measures of performance.

Exhibit 13: Description of Performance Metrics

Metric	Significance Explanation
Average Monthly Return	Indicates the absolute performance of investment funds
Average Monthly SD (Vol)	Indicates the volatility (risk) of the monthly returns of the investment funds
Coefficient of Variation	Indicates how much risk is needed to generate a certain amount of return; a lower ratio implies better risk-adjusted returns for investors
Beta	Indicates the tendency of fund returns to move with the market: lower beta implies more diversifed performance for investors

Statistical Tests

Three statistical tests were performed to test for the existence of significant differences in fund performance: (1) an unpaired t-test to analyze whether average monthly returns were significantly different, (2) an f-test for two sample variances to test whether the funds volatilities (standard deviations) were significantly different, and (3) a Chow test to analyze whether the fund correlation coefficients (betas) with the market (S&P 500) were significantly different. The outcome of these tests - if the other variables aside from the operational restrictions of the ’40 Act were truly isolated – may be indicative of the effect of regulation.

Sample Description

Alternative Mutual Funds

The six largest alternative investment strategy categories by assets under management (AUM) were used to classify funds and are based on Morningstar Category classifications, which are designed to help investors make meaningful comparisons between investment funds.[9] Morningstar covers over 479,000 investment offerings, including the universe of alternative mutual funds. Only funds with a three year track record were kept in the six alternative mutual fund samples in order to ensure adequate data. The sample period is November 2011 to October 2014. There are a total of 205 funds in the alternative mutual fund sample. The sample within each alternative investment category was then contracted further by keeping the mutual fund share class with the highest return from each fund to be represented in each category. To cater toward varying investor preferences, mutual fund share classes present different fee and expense structures for the same investment portfolio of securities. For example, a fund may have a Class A, Class B, and Class C, where Class A might have a type of fee that investors pay when they purchase fund shares (front-end sales load), Class B might have a type of fee that investors pay only when they redeem fund shares (contingent deferred sales load), and Class C can have a mix of the two arrangements.[54] For this study, the best performing fund class for each mutual fund was selected for each fund, to use the fund's highest performing fee structure for investors. The individual observations (fund's monthly returns) were then used to compute an index constructed by computing the weighted average monthly returns for each of the six alternative investment strategy categories. The fund's

weighting within each index was based upon each fund's total assets under management as a percentage of the total alternative investment strategy's assets. Appendix II contains the specific breakdown of each fund and their respective weighting in the six alternative mutual fund indices constructed for this analysis.

Private Fund Sample

The HFRX Indices offered by Hedge Fund Research, Inc. (HFR) were chosen as representative of comparable private fund groups. HFR claims its HFRX indices seek to represent the performance of the hedge funds within a defined strategy. The total monthly percentage returns of the six indices most comparable with the six largest alternative mutual fund categories were calculated over the same November 2011 to October 2014 (36 month time frame). Careful attention was paid to best aligning the asset class and investment style of the alternative mutual fund and the private fund using the Morningstar and HFRX Index definitions. For example – as shown in Appendix III- the sample of alternative mutual funds categorized as Long/Short Equity by Morningstar were paired with the hedge funds included in the HFRX Equity Hedge (total) Index. All funds in both groups only invest in equity (stocks) and use a long/short investment strategy to generate returns for investors. This methodology was extended to pair the regulated and unregulated alternative investment funds across the other five investment strategies of Nontraditional Bond, Currencies, Multi-Alternative, Managed Futures and Market Neutral.

Exhibit 14: Sample Average Metrics
(November 2011 – October 2014)

Vehicle	Private Funds	Mutual Funds	% Δ
	Average	**Average**	**PF vs MF**
Return (monthly)	0.18%	0.15%	16.49%
SD (monthly)	0.80%	1.13%	-29.45%
Compounded Annual Return	2.13%	1.82%	16.64%
Compounded Annual SD	10.02%	14.46%	-30.75%
Coefficient of Variation	4.55	7.51	-39.44%
Beta	1.26	1.53	-18.10%
Coefficient of Variation Difference	-2.96		
Annual Returns Difference	0.30%		
Annual Volatility Difference	-4.45%		
Beta Difference	-0.28		

	Currencies		Managed Futures		Market Neutral	
Vehicle	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**
Return (monthly)	0.11%	-0.01%	0.01%	0.19%	0.02%	-0.07%
SD (monthly)	0.67%	1.41%	0.71%	1.79%	0.76%	0.66%
Compounded Annual Return	1.30%	-0.11%	0.14%	2.32%	0.22%	-0.87%
Compounded Annual SD	8.39%	18.31%	8.84%	23.68%	9.52%	8.20%
Coefficient of Variation	6.24	-152.39	61.73	9.34	42.10	-9.07
Beta	0.68	1.25	-0.27	0.01	0.69	1.67
Coefficient of Variation Difference	158.63		52.39		51.17	
Annual Returns Difference	1.41%		-2.18%		1.09%	
Annual Volatility Difference	-9.92%		-14.84%		1.32%	
Beta Difference	-0.57		-0.28		-0.98	

	Long / Short Equity		Multi-Alternative		Non-Traditional Bond	
Vehicle	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**
Return (monthly)	0.40%	0.52%	0.14%	0.17%	0.37%	0.10%
SD (monthly)	1.35%	1.38%	0.44%	0.99%	0.86%	0.56%
Compounded Annual Return	4.94%	6.48%	1.72%	2.03%	4.55%	1.24%
Compounded Annual SD	17.46%	17.89%	5.42%	12.60%	10.79%	6.94%
Coefficient of Variation	3.35	2.63	3.10	5.93	2.31	5.45
Beta	1.65	1.63	2.94	2.03	1.85	2.61
Coefficient of Variation Difference	0.72		-2.83		-3.14	
Annual Returns Difference	-1.54%		-0.31%		3.31%	
Annual Volatility Difference	-0.43%		-7.18%		3.86%	
Beta Difference	0.02		0.91		-0.77	

Data Observations

The arithmetic mean of private fund returns was 16.64% greater on an absolute basis, 30% less volatile, and nearly 40% greater on a risk-adjusted basis than the arithmetic mean of alternative mutual fund returns over the observed period. The average beta of the private fund samples was 1.26, which was 18% less than the average beta of 1.53 for the alternative mutual fund samples. The largest observed difference in average annualized returns was between the Non-Traditional Bond private funds (4.55%) and mutual funds (1.24%), while the largest observed difference in volatilities were between Managed Futures private and mutual funds (-14.84%). Long/Short Equity mutual funds compared to similar private funds, had a higher observed average return (6.48% versus 4.94%)), a lower CV (2.63 versus 3.35), and a lower beta (1.63 versus 1.65).

Limitations

*A*lternative mutual funds are still a growing segment of the asset management industry. Each alternative mutual fund category only had a portion of the total current mutual fund offerings, because many alternative mutual funds did not exist three years ago. The Multialternative Segment had as many as 47 percent of its category sample deleted because of the significant growth over the past three years in the segment. Another limitation was the size of the data set. It was not possible to get a largest data than 36 month performance because the alternative mutual fund segment is a new development since the last economic recession in 2008.

Private fund (hedge fund and private equity funds) performance data is scare.[55] While several commercial enterprises collect performance data on private funds, “they do not obtain

information for all funds; they [commercial enterprises] often do not disclose, or even collect, fund cash flows and the source of the data is sometimes obscure, resulting in concerns about sample biases."[56] The lack of real representative data on the private fund performance stems from three reasons: (1) participation is voluntary in any data base, (2) most commercially available hedge fund databases formed in the mid-1990s, and (3) different databases have different criteria for identifying the private funds included in their database.[55] For these reason, indices of private fund performance (HFRX Indices in particular) had to be utilized to serve as a proxy for private fund performance. This makes the 'apples-apples' comparison very difficult between a regulated and a non-regulated alternative investment fund.

Another limitation is HFR, the indices' producer, describes the HFRX indices construction methodology as utilizing "state-of-the art quantitative techniques and analysis; multi-level screening, cluster analysis, Monte-Carlo simulations and optimization techniques ensure that each Index is a pure representation of its corresponding investment focus." However, as industry experts note, the HFRX's "lack of clear transparency with respect to [the] extremely complex calculation of weighting in an index" is one of the index's unique limitations.[57] The HFRX index strengths are HFR's relatively large 7000 hedge fund data sample, and as investable indices, HFRX indices more accurately represent the performance accessible to investors compared to other hedge fund indices. [57]

Biases

Two main biases arise in hedge fund indices: survivorship bias and selection bias.[55] As Professor David Hsieh of Duke's Fuqua School of Business wrote, "Survivorship bias arises when a sample of hedge funds includes only funds that are operating at the end of the sampling

period and excludes funds that have ceased operations during the period. Presumably, funds cease operation because of poor performance. Therefore, the historical return performance of the sample is biased upward and the historical risk is biased downward relative to the universe of all funds." Professor Hsiesh writes that selection bias in hedge fund data "manifests itself" in two ways. The first: "Hedge funds that satisfy the inclusion criteria of a vendor may enter a database on the basis of their track record and assets under management. On the one hand, presumably, only those funds that have "good" performance and are looking to attract new investors want to be included in a database. Therefore, hedge funds in a database tend to have better performance than those that were excluded." The second manifestation of the data's selection bias arises from the voluntary nature of fund participation in a database, which allows the database vendors to introduce sampling biases through their inclusion criteria.[55] The HFRX indices have been criticized for their susceptibility to survivorship bias by allowing funds to voluntarily stop posting returns, and their susceptibility to selection bias but not including closed funds and funds with less than $50 million in assets under management.[57]

The alternative mutual fund sample is subject to survivorship bias because only funds that had recorded performance over the 36 month time period were eligible to be included in the representative index. The Morningstar mutual fund database is subject to survivorship bias, because Morningstar removes failed mutual funds annually from its database.[58] The private fund sample is still expected to have greater survivorship problems because of the difficulty with verifying the completeness of historical records on defunct private funds[55]. This would imply that the average return is lower, and the variance higher, for the true population of

private funds compared to this study's sample. This bias would exaggerate the benefits of private funds. These biases are considered when discussing the implications of the test results.

Test Results

Test 1

Table one shows a summary of the results of the six unpaired t-tests used to analyze whether the monthly returns between alternative mutual funds was significantly difference across any of the profiled alternative investment strategies.

Hypothesis:

H_0: $\mu_1 - \mu_2 = 0$, $\alpha = .05$
H_1: $\mu_1 - \mu_2 \neq 0$

μ_1 = Hedge Fund Index Returns,

$\mu 2_=$ Alternative Mutual Fund Index Returns

Summary of Test Results:

		Average Monthly Returns	P-Value	Statistically Significant?
Currencies	*Private Fund*	0.11%	0.66	No
	Mutual Fund	-0.01%		
Managed Futures	*Private Fund*	0.01%	0.58	No
	Mutual Fund	0.19%		
Market Neutral	*Private Fund*	0.02%	0.60	No
	Mutual Fund	-0.07%		
Long / Short Equity	*Private Fund*	0.40%	0.71	No
	Mutual Fund	0.52%		
Multi-Alternative	*Private Fund*	0.14%	0.89	No
	Mutual Fund	0.17%		
Non-Traditional Bond	*Private Fund*	0.37%	0.13	No
	Mutual Fund	0.10%		

Discussion of Test Results:

The null hypothesis was failed to be rejected across the six statistical tests indicating that there is no evidence, based on this sample, to believe that the returns of alternative mutual funds and private fund are statistically difference. The closest test to a significant relationship was the Non-Traditional Bond alternative strategy category. The test for significant differences in mean returns yielded the lowest p-value of the total sample at .13, however was still greater than the .05 significance level.

Test 2

Table 2 shows a summary of the results of the six f-tests for differences in variances used to test whether funds' volatilities (standard deviations, risk) were significantly different across the profiled alternative investment strategies.

Hypothesis:

$H_0: \sigma_x = \sigma_y$,
$H_A: \sigma_x \neq \sigma_y$ or $H_A: \sigma_x > \sigma_y$ or $H_A: \sigma_y > \sigma_x$

σ^2_x = Hedge Fund Index Variance

σ^2_y = Alternative Mutual Fund Index Variance

α =.05

Summary of Test Results:

		Average Monthly Volatility	F-Statistic	Statistically Significant?
Currencies	*Private Fund*	0.67%	4.38	**Yes**
	Mutual Fund	1.41%		
Managed Futures	*Private Fund*	0.71%	6.36	**Yes**
	Mutual Fund	1.79%		
Market Neutral	*Private Fund*	0.76%	1.33	No
	Mutual Fund	0.66%		
Long / Short Equity	*Private Fund*	1.35%	1.05	No
	Mutual Fund	1.38%		
Multi-Alternative	*Private Fund*	0.44%	5.08	**Yes**
	Mutual Fund	0.99%		
Non-Traditional Bond	*Private Fund*	0.86%	2.34	**Yes**
	Mutual Fund	0.56%		

Discussion of Test Results:

The null hypothesis was rejected in four of the six F-tests. There is sufficient empirical evidence to state that the differences between the variances of the private fund and alternative mutual fund samples are statistically significant at the .05 confidence level. Private funds in the Currencies, Managed Futures, and Multi-Alternative segments had significantly lower volatilities compared to comparable alternative mutual funds. Non-Traditional Bond alternative mutual funds had a significantly lower volatility compared to private funds. The

variances of Market Neutral and Long/Short equity investment funds showed no statistical difference between regulatory statuses.

Test 3

Table 3 shows a summary of the results of the six Chow tests used to analyze whether the fund beta coefficients with the market (S&P 500) were significantly different.

Hypothesis:

H_0: $\beta_1 = \beta_2, \alpha = .05$

H_A: $\beta_1 \neq \beta_2$

β_1= Hedge Fund Index Beta to S&P 500, β_2 = Alternative Mutual Fund Index Beta to S&P 500

Summary Results:

		Beta to S&P 500	P-Value	Statistically Significant?
Currencies	*Private Fund*	0.68	0.65	No
	Mutual Fund	1.25		
Managed Futures	*Private Fund*	-0.27	0.92	No
	Mutual Fund	0.01		
Market Neutral	*Private Fund*	0.69	0.50	No
	Mutual Fund	1.67		
Long / Short Equity	*Private Fund*	1.65	0.81	No
	Mutual Fund	1.63		
Multi-Alternative	*Private Fund*	2.94	0.54	No
	Mutual Fund	2.03		
Non-Traditional Bond	*Private Fund*	1.85	9.77E-06	**Yes**
	Mutual Fund	2.61		

Discussion of Test Results:

The six Chow tests for significant differences in the betas of the fund sample result in one significant difference. The Non-Traditional Bond private funds had a statistically significant lower beta to the S&P 500 than comparable alternative mutual funds. The other five alternative strategy segments did not show a significant difference between fund sample betas.

Summary Discussion

All investment fund performance metrics and statistical test results are summarized in the Study Summary Table contained in Appendix I. The difference in absolute performance of alternative mutual funds versus private funds was not significant for the 36 month time frame across any of the six alternative investment strategies. The variances of the two fund groups were significantly lower in the Currencies, Managed Futures, and Multi-Alternative strategies. Non-Traditional Bond mutual funds have a statistically significant lower volatility than comparable hedge funds. Fund structure within the Market Neutral and Long/Short Equity segments did not yield a significant difference in volatility. The output of these two tests can be combined to gain further insight into the performance of the different funds, as reflected in the fund's CV. A lower relative CV ratio indicates that the fund is generating the same amount of return with a lower per unit amount of risk.

From the statistical tests above, it can be inferred that for the same level of returns privates investment funds within the Multi-Alternative and Non-Traditional Bond segments can provide their investors with lower volatility, while alternative mutual funds in the Managed Futures segment seem to provide their investors with lower volatility for the same level of

return. Market Neutral and Long/Short Equity strategies did not show any significant differences in their returns or volatility. The CV's of the Currency and Market Neutral alternative mutual funds were negative because of the negative monthly return index average.

The third statistical test performed was the Chow test to analyze whether the betas of the alternative investment funds were significantly different between regulated and unregulated funds. An investment fund's return's beta indicates the explanatory influence of broader market moves on the investment fund's performance. Alternative strategies are marketed to investors as providing better protection from market volatility[45]. The Non-Traditional Bond private funds had a statistically significant lower beta to the S&P 500 compared to the beta of Non-Traditional Bond alternative mutual funds. There was not a statistically significant difference between the betas of the other five alternative investment strategies.

Implications for Future Research

The analysis presented here is a first effort to measure meaningful differences in outcomes between regulated and unregulated investments funds. This first effort can be improved in a number of ways. For the statistical results to have real explanatory power more data is needed over a longer time period. In addition, there would have to be more precise definitions of investment funds, development of methods to address the sample biases, the use of audited returns instead of separate reporting, and the sampling of the historical performance of the underlying assets to better isolate the drivers of alternative fund returns. The results of this study do seem to indicate the potential for the impact of regulation of fund performance. Across three of the alternative investment strategies, private funds had a statistically lower volatility. There are numerous explanations for this result however. First, unregulated funds do indeed expand investment opportunities and can exploit options in productive ways. Second, regulated funds could be using a riskier (higher volatility) strategy to compensate for the liquidity regulations. In effect, a type of moral hazard could be developed for regulated alternative mutual funds. That is, the benefits that alternative strategies present in an unregulated fund structure might not be present for alternative mutual funds. Regulated funds then potentially attempt to compensate for various constraints by holding, on balance, a more risky portfolio, with returns held constant, than unregulated funds. Behavioral models are needed to analyze such situations with empirical implications being derived from those models. Such an approach is beyond the scope of the current analysis but the results are suggestive for the need for better modeling of investment decisions and the effects of regulation on those decisions.

A regulatory effort for gathering private fund performance data is very important to understanding investor protection regulations in the world of alternative strategies. Without having this insight, unintended consequences of investor protection regulation may manifest itself in the reduction of the effectiveness of alternative investment strategies in the retail investors' portfolio. The first step for the SEC to undertake this analysis is to build a more complete data set of private fund performance. While it may be politically and practically infeasible to send an inquiry to all private funds for their performance data, it would be possible to aggregate much existing performance data from the commercial vendors of hedge fund data. The limitations of these data sets are well documented as described above, yet this would be a starting point for understanding how unregulated funds have performed, and whether any of their performance can be explained by their unregulated status. True comparable data sets, with significant performance histories could then begin to be constructed between alternative mutual funds and private funds. Once an 'apples-apples' data set of mutual funds and private is constructed, regulators can replicate this study's methodology of testing for significant differences in fund returns, volatilities, and betas. If the SEC's empirical work helps to answer this study's central question, then it would help regulators have a clearer perspective on the cost of regulation for these funds. If the '40 Act is found to be too burdensome for investors in alternatives relative to their cost, then the SEC might consider alternative, but productive, regulatory changes preserving investor confidence while enabling the exploitation of new methods.

Appendix I: Study Summary Table

	Currencies		Managed Futures		Market Neutral		Long / Short Equity		Multi-Alternative		Non-Traditional Bond		Private Funds	Mutual Funds	% Δ
Vehicle	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Private Fund**	**Mutual Fund**	**Average**	**Average**	**PF vs MF**
Return (monthly)	0.11%	-0.01%	0.01%	0.19%	0.02%	-0.07%	0.40%	0.52%	0.14%	0.17%	0.37%	0.10%	0.18%	0.15%	16.49%
SD (monthly)	0.67%	1.41%	0.71%	1.79%	0.76%	0.66%	1.35%	1.38%	0.44%	0.99%	0.86%	0.56%	0.80%	1.13%	-29.45%
Compounded Annual Return	1.30%	-0.11%	0.14%	2.32%	0.22%	-0.87%	4.94%	6.48%	1.72%	2.03%	4.55%	1.24%	2.13%	1.82%	16.64%
Compounded Annual SD	8.39%	18.31%	8.84%	23.68%	9.52%	8.20%	17.46%	17.89%	5.42%	12.60%	10.79%	6.94%	10.02%	14.46%	-30.75%
Coefficient of Variation	6.24	-152.39	61.73	9.34	42.10	-9.07	3.35	2.63	3.10	5.93	2.31	5.45	4.55	7.51	-39.44%
Beta	0.68	1.25	-0.27	0.01	0.69	1.67	1.65	1.63	2.94	2.03	1.85	2.61	1.26	1.53	-18.10%
Beta F-Statistic	1.11	29.80	0.18	0.00	1.46	7.52	97.20	107.02	11.43	52.73	20.39	16.09	21.96	35.53	-38.19%
Coefficient of Variation Difference	158.63		52.39		51.17		0.72		-2.83		-3.14		-2.96		
Annual Returns Difference	1.41%		-2.18%		1.09%		-1.54%		-0.31%		3.31%		0.30%		
Annual Volatility Difference	-9.92%		-14.84%		1.32%		-0.43%		-7.18%		3.86%		-4.45%		
Beta Difference	-0.57		-0.28		-0.98		0.02		0.91		-0.77		-0.28		
Difference of Means P-Value	0.66		0.58		0.60		0.71		0.89		0.13				
Statistically Significant?	No		No		No		No		No		No				
Difference of Variances F-Test	4.38		6.36		1.33		1.05		5.08		2.34				
Statistically Significant?	Yes		Yes		No		No		Yes		Yes				
Chow Test P-Value	0.65		0.92		0.50		0.81		0.54		9.77E-06				
Statistically Significant?	No		No		No		No		No		Yes				

Appendix II – Alternative Mutual Fund Index Construction

The components of the six alternative mutual fund samples are contained below. All asset data listed is of October 2014 from Morningstar's mutual fund research platform.

Currencies

Number of Funds	14
Total Index Assets	10237
Total Strategy Assets	10350
Sample Percentage	98.91%

Fund Name	Ticker	Inception Date	Total Assets	Segment Weight
PIMCO Emerging Markets Currenc	PLMIX	5/31/2005	6288	61.42%
JHancock Absolute Return Curre	JCUNX	7/30/2010	2007	19.61%
Eaton Vance Diversified Curren	EAIIX	3/1/2011	629	6.14%
Lord Abbett Emerging Markets	LDMAX	10/19/2004	369	3.60%
Merk Hard Currency	MHCIX	4/1/2010	247	2.41%
Templeton Hard Currency	ICPHX	12/31/1996	246	2.40%
JPMorgan International Currenc	JCIAX	3/30/2007	115	1.12%
Federated Prudent DollarBear	PSAFX	12/8/2008	98	0.96%
ProFunds Rising US Dollar Inve	RDPIX	2/17/2005	87	0.85%
Columbia Absolute Ret Ccy & In	RARAX	6/15/2006	51	0.50%
FX Strategy	FXFAX	8/3/2011	42	0.41%
Merk Absolute Return Currency	MAAIX	4/1/2010	41	0.40%
Ashmore Emerging Markets Ccy	ECYAX	12/8/2010	10	0.10%
ProFunds Falling US Dollar	FDPIX	2/17/2005	7	0.07%

Managed Futures

Number of Funds	15
Total Index Assets	10018
Total Strategy Assets	12906
Sample Percentage	77.62%

Fund Name	Ticker	Inception Date	Total Assets	% of Segment
AQR Managed Futures Strategy I	AQMIX	1/6/2010	6240	62.29%
Natixis ASG Managed Futures St	AMFAX	7/30/2010	1318	13.16%
Catalyst Hedged Futures Strate	HFXAX	12/15/2005	512	5.11%
LoCorr Managed Futures Strateg	LFMAX	3/22/2011	448	4.47%
Equinox MutualHedge Futures St	MHFAX	5/24/2011	301	3.00%
Altegris Managed Futures Strat	MFTAX	8/26/2010	264	2.64%
Guggenheim Managed Futures Str	RYYMX	3/29/2010	229	2.29%
Aspen Managed Futures Strategy	MFBTX	8/2/2011	205	2.05%
State Street/Ramius Mgd Futs S	RTSRX	9/13/2011	125	1.25%
Altegris Macro Strategy I	MCRAX	6/1/2011	115	1.15%
Forward Commodity L/S Strategy	FTEZX	12/31/2010	91	0.91%
Princeton Futures Strategy I	PFFAX	7/8/2010	85	0.85%
Grant Park Managed Futures Str	GPFAX	3/4/2011	54	0.54%
Dunham Alternative Strategy N	DAASX	2/12/2009	17	0.17%
Arrow Managed Futures Strategy	MFTFX	4/29/2010	14	0.14%

Market Neutral

Number of Funds	32
Total Index Assets	28224
Total Strategy Assets	35531
Sample Percentage	*79.43%*

Fund Name	Ticker	Inception Date	Total Assets	Segment %
Merger Investor	MERFX	1/31/1989	5424	19.22%
Calamos Market Neutral Income	CVSIX	5/10/2000	4197	14.87%
PIMCO Fundamental Advtg Abs Re	PFATX	2/29/2008	4110	14.56%
GMO Alpha Only IV	GAPOX	3/2/2006	3072	10.88%
AQR Diversified Arbitrage	ADAIX	1/15/2009	2674	9.47%
Arbitrage	ARBFX	10/17/2003	2499	8.85%
Hussman Strategic Growth	HSGFX	7/24/2000	1038	3.68%
TFS Market Neutral	TFSMX	9/7/2004	770	2.73%
JPMorgan Research Market Neutr	JPMNAX	12/31/1998	736	2.61%
Arbitrage Event-Driven	AEDNX	10/1/2010	683	2.42%
BlackRock Emerging Mkt L/S Eq	BLSAX	10/6/2011	572	2.03%
JPMorgan Multi-Cap Market Neut	OGNAX	5/23/2003	415	1.47%
Touchstone Merger Arbitrage In	TMGAX	8/9/2011	415	1.47%
Vanguard Market Neutral	VMNIX	10/19/1998	283	1.00%
Deutsche Diversified Market Ne	DDMAX	10/13/2006	223	0.79%
Federated Absolute Return Inst	FMAAX	6/28/2007	200	0.71%
Causeway Global Absolute Retur	CGAIX	1/24/2011	167	0.59%
Turner Spectrum Instl	TSPEX	5/7/2009	128	0.45%
JPMorgan Market Neutral	HSKAX	11/30/2005	117	0.41%
American Century Equity Mkt Ne	ALISX	9/30/2005	117	0.41%
Whitebox Market Neutral Equity	WBLFX	6/1/2004	83	0.29%
American Century Mkt Neutral	ACVQX	10/31/2011	77	0.27%
BPV Wealth Preservation	BPVPX	10/4/2011	74	0.26%
Turner Medical Sciences Long/S	TMSEX	2/7/2011	40	0.14%
Prudential Jennison Market Neu	PJNAX	4/23/2010	30	0.11%
PSI Market Neutral	FXMAX	8/25/2010	22	0.08%
UBS Equity Long-Short Multi-St	BMNAX	6/30/2010	16	0.06%
Catalyst Event Arbitrage	CEAAX	6/30/1997	15	0.05%
Visium Event Driven Investor	VIDVX	12/29/2000	15	0.05%
Zacks Market Neutral	ZMNAX	7/24/2008	9	0.03%
AllianceBern Mkt Ntrl Strat US	AMUIX	8/3/2010	3	0.01%
Purisima All-Purpose	PURLX	11/1/2005	0	0.00%

Long / Short Equity

Number of Funds	58
Total Index Assets	44115
Total Strategy Assets	56884
Sample Percentage	77.55%

Fund Name	Ticker	Inception Date	Total Assets	% Segment
MainStay Marketfield I	MFADX	7/31/2007	16036	36.35%
Gateway A	GATEX	2/19/2008	7982	18.09%
Robeco Boston Partners L/S Rsr	BPIRX	9/30/2010	5343	12.11%
Diamond Hill Long-Short A	DIAMX	1/31/2005	3724	8.44%
Wasatch Long/Short Investor	FMLSX	8/1/2003	2576	5.84%
Highland Long/Short Equity Z	HEOAX	12/5/2006	932	2.11%
Forward Tactical Growth Inst	FTAGX	9/14/2009	894	2.03%
Robeco Boston Partners L/S Equ	BPLSX	11/16/1998	868	1.97%
CBRE Clarion Long/Short Instl	CLSIX	11/20/2000	712	1.61%
Schooner A	SCNAX	8/29/2008	417	0.95%
Highland Long/Short Healthcare	HHCAX	5/5/2008	386	0.87%
Aberdeen Equity Long-Short Ins	MLSAX	6/29/2004	355	0.80%
Ironclad Managed Risk	IRONX	10/14/2010	334	0.76%
Giralda Manager	GDAMX	7/19/2011	248	0.56%
ASTON/River Road Long-Short N	ALSIX	5/4/2011	238	0.54%
ASTON/Anchor Capital Enhanced	AMDSX	3/3/2010	206	0.47%
Schwab Hedged Equity	SWHEX	9/3/2002	199	0.45%
LS Opportunity	LSOFX	9/29/2010	176	0.40%
Forester Value I	FVILX	6/8/2009	146	0.33%
Caldwell & Orkin Market Opport	COAGX	8/24/1992	128	0.29%
JPMorgan Research Equity Long/	JLSAX	5/28/2010	128	0.29%
Toews Hedged Core S	THSMX	6/4/2010	117	0.27%
RiverPark Long/Short Opportuni	RLSIX	9/30/2009	117	0.27%
Quaker Event Arbitrage A	QEAAX	6/7/2010	116	0.26%
Glenmede Long/Short	GTAPX	9/29/2006	108	0.24%
AdvisorOne Enhanced Income N	CLEIX	10/1/2009	103	0.23%
Toews Hedged Core L	THLGX	6/4/2010	94	0.21%
Dividend Plus Income Inv	DIVPX	11/22/2010	90	0.20%
Hussman Strategic Internationa	HSIEX	12/31/2009	88	0.20%
Toews Hedged Core W	THIDX	6/4/2010	86	0.19%
Orinda SkyView Multi-Manager H	OHEIX	3/31/2011	83	0.19%
Alger Dynamic Opportunities Z	ADOZX	12/29/2010	81	0.18%
Touchstone Dynamic Equity Inst	TDELX	12/9/2005	77	0.17%
Navigator Equity Hedged I	NAVIX	12/28/2010	75	0.17%
RiverPark/Gargoyle Hedged Valu	RGHIX	1/3/2000	75	0.17%
Hancock Horizon Quant Long/Sho	HHQAX	9/30/2008	74	0.17%
Burnham Financial Long/Short A	BURFX	4/30/2004	71	0.16%
Madison Covered Call & Equity	MENAX	11/2/2009	57	0.13%
Glenmede Total Market	GTTMX	12/21/2006	57	0.13%
Forward Tactical Enhanced Advi	FTENX	4/15/2011	47	0.11%
Bridgeway Managed Volatility	BRBPX	6/29/2001	45	0.10%
Guggenheim Long Short Equity F	RYAMX	3/31/2004	43	0.10%
AmericaFirst Defensive Growth	DGQIX	5/23/2011	41	0.09%
FundX Tactical Upgrader	TACTX	2/29/2008	39	0.09%
Nuveen Equity Long/Short I	NELIX	12/30/2008	39	0.09%
Hatteras Long / Short Equity A	HLSAX	5/2/2011	35	0.08%
Eaton Vance Risk-Managed Equit	EROIX	2/29/2008	34	0.08%
ICON Long/Short S	IOLZX	5/6/2004	33	0.07%
Keeley Alternative Value I	KALIX	4/1/2010	32	0.07%
Catalyst Hedged Insider Buying	STVAX	10/28/2010	28	0.06%
James Long-Short	JAZZX	5/23/2011	27	0.06%
Huntington Disciplined Equity	HDEAX	7/29/2011	18	0.04%
Dunham Dynamic Macro A	DAAVX	4/29/2010	14	0.03%
Turner Titan Instl	TTLEX	2/7/2011	12	0.03%
Philadelphia Invmt Ptnrs New G	PIPGX	6/8/2011	12	0.03%
Guggenheim Alpha Opportunity A	SAOAX	11/7/2008	10	0.02%
Toews Hedged Core Frontier	THEMX	5/14/2009	6	0.01%
Leigh Baldwin Total Return	LEBOX	7/31/2008	3	0.01%

Non-Traditional Bond

Number of Funds	40
Total Index Assets	145416
Total Strategy Assets	153985
Sample Percentage	94.44%

Fund Name	Ticker	Inception Date	Total Assets	Segment Weight
JPMorgan Strategic Income Opps	JSORX	10/10/2008	26262	17.05%
Goldman Sachs Strategic Income	GSZIX	6/30/2010	25915	16.83%
BlackRock Strategic Income Opp	BSIIX	2/5/2008	22079	14.34%
PIMCO Unconstrained Bond Inst	PFIUX	6/30/2008	18277	11.87%
Putnam Diversified Income Y	PDVYX	7/1/1996	6954	4.52%
BlackRock Global Long/Short Cr	BGCIX	9/30/2011	6740	4.38%
FPA New Income	FPNIX	4/1/1969	5830	3.79%
Driehaus Active Income	LCMAX	11/8/2005	4531	2.94%
Eaton Vance Glbl Macr Absolute	EIGMX	6/27/2007	4230	2.75%
MainStay Unconstrained Bond I	MSDIX	1/2/2004	2514	1.63%
Prudential Absolute Return Bon	PADQX	3/30/2011	2460	1.60%
Scout Unconstrained Bond Instl	SUBFX	9/29/2011	2182	1.42%
PIMCO Credit Absolute Return I	PCARX	8/31/2011	1519	0.99%
JHancock Short Duration Credit	JMBNX	10/30/2009	1477	0.96%
Legg Mason BW Absolute Return	LROIX	2/28/2011	1359	0.88%
Loomis Sayles Strategic Alpha	LASYX	12/15/2010	1309	0.85%
Driehaus Select Credit	DRSLX	9/30/2010	1198	0.78%
Eaton Vance Glbl Macro Abs Ret	EGRIX	8/31/2010	1183	0.77%
PIMCO Floating Income Instl	PFIIX	7/30/2004	1169	0.76%
Putnam Absolute Return 300 Y	PYTRX	12/23/2008	1099	0.71%
Metropolitan West Unconstraine	MWCIX	9/30/2011	1041	0.68%
Western Asset Total Return Unc	WAASX	8/4/2008	876	0.57%
Pioneer Dynamic Credit Y	RCRYX	4/29/2011	815	0.53%
Hatteras Long / Short Debt Ins	HFINX	5/2/2011	610	0.40%
Dreyfus Opportunistic Fixed In	DSTRX	7/11/2006	578	0.38%
Delaware Diversified Floating	DDFLX	2/26/2010	504	0.33%
Iron Strategic Income Institut	IFUNX	10/10/2006	394	0.26%
PIMCO Unconstrained Tax Manage	PUTIX	1/30/2009	381	0.25%
AllianceBern Unconstrained Bon	AGLIX	3/1/2005	377	0.24%
Putnam Absolute Return 100 Y	PARYX	12/23/2008	282	0.18%
American Beacon Flexible Bond	AFXIX	7/5/2011	247	0.16%
Eaton Vance Multi-Strat Absolu	EIDDX	10/1/2009	227	0.15%
Metropolitan West Strategic In	MWSIX	3/31/2004	202	0.13%
MFS® Absolute Return I	MRNIX	3/30/2011	200	0.13%
Forward Credit Analysis Long/S	FLSIX	5/1/2008	123	0.08%
Hartford Unconstrained Bond R5	HTITX	9/30/2011	113	0.07%
UBS Fixed Income Opportunities	FNOYX	11/29/2010	64	0.04%
Parametric Absolute Return Ins	EOAIX	9/30/2010	39	0.03%
Harbor Unconstrained Bond Admi	HRUBX	4/1/2010	38	0.02%
Federated Unconstrained Bond I	FUBDX	12/13/2010	18	0.01%

Multi – Alternative

Number of Funds	46
Total Index Assets	21061
Total Strategy Assets	40014
Sample Percentage	52.63%

Fund Name	Ticker	Inception Date	Total Assets	Segment Weight
Natixis ASG Global Alternative	GAFYX	9/30/2008	2857	13.57%
Absolute Strategies I	ASFIX	7/11/2005	2006	9.52%
Goldman Sachs Abs Return Track	GJRTX	5/30/2008	1961	9.31%
AQR Multi-Strategy Alternative	ASAIX	7/19/2011	1436	6.82%
JHancock Alternative Asset All	JAAIX	12/30/2010	1290	6.13%
Vantagepoint Diversifying Stra	VPDAX	10/30/2007	1046	4.97%
Litman Gregory Master Alt Stra	MASFX	9/30/2011	913	4.34%
Oppenheimer Flexible Strategie	QOPYX	12/16/1996	805	3.82%
SEI Muti-Asset Real Return A (	SEIAX	7/29/2011	709	3.37%
PACE Alternative Strategies P	PASPX	4/11/2006	699	3.32%
Hatteras Alpha Hedged Strategi	ALPIX	9/30/2011	633	3.01%
Deutsche Alternative Asset All	AAAZX	7/30/2007	564	2.68%
Deutsche Select Alternative Al	SELIX	9/30/2008	550	2.61%
ASTON/Lake Partners LASSO Alte	ALSOX	4/1/2009	512	2.43%
Dreyfus Dynamic Total Return I	AVGRX	5/2/2006	509	2.42%
SEI Multi Strategy Alternative	SMSAX	4/1/2010	492	2.34%
Transamerica Multi-Manager Alt	TASIX	11/30/2009	487	2.31%
MFS® Global Alternative Strate	DVRKX	12/20/2007	383	1.82%
Dreyfus Global Real Return I	DRRIX	5/12/2010	370	1.76%
Hatteras Hedged Strategies Ins	HHSIX	5/2/2011	352	1.67%
UBS Dynamic Alpha P	BNAYX	1/27/2005	322	1.53%
Palmer Square Absolute Return	PSQIX	5/17/2011	310	1.47%
Dunham Monthly Distribution N	DNMDX	9/29/2008	278	1.32%
IQ Alpha Hedge Strategy Inst	IQHIX	6/30/2008	225	1.07%
Virtus Alternatives Diversifie	VADIX	10/1/2009	123	0.58%
Guggenheim Multi-Hedge Strateg	RYIMX	5/3/2010	104	0.49%
Columbia Absolute Ret Enh Mult	CASIX	3/31/2011	101	0.48%
Aberdeen Diversified Alternati	GASIX	6/29/2004	98	0.47%
Nuveen Tactical Market Opportu	FGTYX	12/30/2009	95	0.45%
Ramius Hedged Alpha I	RDRIX	7/22/2010	94	0.45%
KCM Macro Trends R-1	KCMTX	8/4/2008	88	0.42%
Permal Alternative Core I	LPTIX	4/13/2009	86	0.41%
Absolute Credit Opportunities	AOFOX	10/21/2008	74	0.35%
AMG FQ Global Alternatives Ins	MGAIX	1/1/2010	70	0.33%
SunAmerica Alternative Strateg	SUNWX	11/4/2008	65	0.31%
Alpha Opportunistic Alternativ	ACOPX	1/31/2011	65	0.31%
Compass EMP Alternative Strate	CAIAX	12/30/2009	59	0.28%
Granite Harbor Tactical Invest	GHTFX	9/8/2011	46	0.22%
EAS Crow Point Alternatives I	EASIX	8/14/2008	38	0.18%
Alpha Defensive Alternatives I	ACDEX	1/31/2011	36	0.17%
GMG Defensive Beta	MPDAX	8/14/2009	28	0.13%
Van Eck Multi-Manager Alternat	VMAIX	6/5/2009	25	0.12%
Columbia Absolute Ret Multi-St	CMSIX	3/31/2011	22	0.10%
Guggenheim Event Drv & Distrsd	RYDTX	6/30/2010	12	0.06%
FundX Tactical Total Return	TOTLX	5/29/2009	12	0.06%
JPMorgan Alternative Strategie	JARSX	7/1/2010	11	0.05%

Appendix III – Alternative Investment Strategy Descriptions[9, 59]

	Strategy Descriptions	
	Mutual Fund	Hedge Fund
Nontraditional Bond	The Nontraditional Bond category contains funds that pursue strategies divergent in one or more ways from conventional practice in the broader bond-fund universe. Many funds in this group describe themselves as "absolute return" portfolios, which seek to avoid losses and produce returns uncorrelated with the overall bond market; they employ a variety of methods to achieve those aims. Another large subset are self-described "unconstrained" portfolios that have more flexibility to invest tactically across a wide swath of individual sectors, including high-yield and foreign debt, and typically with very large allocations. The category is also home to a subset of portfolios that attempt to minimize volatility by maintaining short or ultra-short duration portfolios, but explicitly court significant credit and foreign bond market risk in order to generate high returns. Funds within this category often will use credit default swaps and other fixed income derivatives to a significant level within their portfolios.	HFRX Fixed Income - Credit Index includes strategies with exposure to credit across a broad continuum of credit sub-strategies, including Corporate, Sovereign,Distressed, Convertible, Asset Backed, Capital Structure Arbitrage, Multi-Strategy and other Relative Value and Event Driven sub-strategies. Investment thesis across all strategies is predicated on realization of a valuation discrepancy between the related credit instruments. Strategies may also include and utilize equity securities, credit derivatives, government fixed income, commodities, currencies or other hybrid securities.
Long/Short Equity	Long-short portfolios hold sizable stakes in both long and short positions in equities and related derivatives. Some funds that fall into this category will shift their exposure to long and short positions depending on their macro outlook or the opportunities they uncover through bottom-up research. Some funds may simply hedge long stock positions through exchange-traded funds or derivatives. At least 75% of the assets are in equity securities or derivatives.	Equity Hedge strategies maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedgemanagers would typically maintain at least 50%, and may in some cases be substantially entirely invested in equities, both long and short.
Multialternative	These funds offer investors exposure to several different alternative investment tactics. Funds in this category have a majority of their assets exposed to alternative strategies. An investor's exposure to different tactics may change slightly over time in response to market movements. Funds in this category include both funds with static allocations to alternative strategies and funds tactically allocating among alternative strategies and asset classes. The gross short exposure is greater than 20%.	The HFRX Absolute Return Index is designed to be representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. As a component of the optimization process, the index selects constituents which characteristically exhibit lower volatilities and lower correlations to standard directional benchmarks of equity market and hedge fund industry performance.

Managed Futures	These funds primarily trade liquid global futures, options, swaps, and foreign exchange contracts, both listed and over-the-counter. A majority of these funds follow trend-following, price-momentum strategies. Other strategies included in this category are systematic mean-reversion, discretionary global macro strategies, commodity index tracking, and other futures strategies. More than 60% of the fund's exposure is invested through derivative securities. These funds obtain exposure primarily through derivatives; the holdings are largely cash instruments.	Macro strategy managers trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact hese have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Although some strategies employ RV techniques, Macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments, rather than realization of a valuation discrepancy between securities. In a similar way, while both Macro and equity hedge managers may hold equity securities, the overriding investment thesis is predicated on the impact movements in underlying macroeconomic variables may have on security prices, as opposed to EH, in which the fundamental characteristics on the company are the most significant and integral to investment thesis.
Market Neutral	These funds attempt to reduce systematic risk created by factors such as exposures to sectors, market-cap ranges, investment styles, currencies, and/or countries. They try to achieve this by matching short positions within each area against long positions. These strategies are often managed as beta-neutral, dollar-neutral, or sector-neutral. In attempting to reduce systematic risk, these funds put the emphasis on issue selection, with profits dependent on their ability to sell short and buy long the correct securities.	Equity Market Neutral strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. These can include both Factor-based and Statistical Arbitrage/Trading strategies. Factor-based investment strategies include strategies in which the investment thesis is predicated on the systematic analysis of common relationships between securities. In many but not all cases, portfolios are constructed to be neutral to one or multiple variables, such as broader equity markets in dollar or beta terms, and leverage is frequently employed to enhance the return profile of the positions identified. Statistical Arbitrage/Trading strategies consist of strategies in which the investment thesis is predicated on exploiting pricing anomalies which may occur as a function of expected mean reversion inherent in security prices; high frequency techniques may be employed and trading strategies may also be employed on the basis on technical analysis or opportunistically to exploit new information the investment manager believes has not been fully, completely or accurately discounted into current security prices.
Multi-Currency	Currency portfolios invest in multiple currencies through the use of short-term money market instruments; derivative instruments including and not limited to forward currency contracts, index swaps, and options; and cash deposits.	Currency Index include both discretionary and systematic currency strategies. Systematic Currency strategies have investment processes typically as function of mathematical, algorithmic and technical models, with little or no influence of individuals over the portfolio positioning. Strategies which employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across currency assets classes, frequently with related ancillary exposure n sovereign fixed income. Strategies typically employ quantitative process which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments and maintain shorter holding periods than either discretionary or mean reverting strategies. Although some strategies seek to employ counter trend models, strategies benefit most from an environment characterized by persistent, discernible trending behavior. Systematic Currency strategies typically would expect to have greater than 35% of portfolio in dedicated currency exposure over a given market cycle. Discretionary Currency strategies are reliant on the fundamental evaluation of market data, relationships and influences as they pertain primarily to currency markets including positions in global foreign exchange markets, both listed and unlisted, and as interpreted by an individual or group of individuals who make decisions on portfolio positions; strategies employ an investment process most heavily influenced by top down analysis of macroeconomic variables.

Appendix IV – Statistical Tests

Currencies

Multi-Currency Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.0010796	-9.25999E-05
Variance	4.67125E-05	0.000204821
Observations	36	36
Hypothesized Mean Difference	0	
df	50	
t Stat	0.443460326	
P(T<=t) one-tail	0.32967293	
t Critical one-tail	1.675905025	
P(T<=t) two-tail	0.659345861	
t Critical two-tail	2.008559112	

F-Test Two-Sample for Variances		
	Mutual Funds	*Hedge Funds*
Mean	-9.25999E-05	0.0010796
Variance	0.000204821	4.67125E-05
Observations	36	36
df	35	35
F	4.384720008	
P(F<=f) one-tail	1.54973E-05	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
0.438436	2	68	0.064686

Managed Futures

Managed Futures Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.0001148	0.001913564
Variance	5.16587E-05	0.000328446
Observations	36	36
Hypothesized Mean Difference	0	
df	46	
t Stat	-0.553571767	
P(T<=t) one-tail	0.291276422	
t Critical one-tail	1.678660414	
P(T<=t) two-tail	0.582552845	
t Critical two-tail	2.012895599	

F-Test Two-Sample for Variances		
	Mutual Fund	*Hedge Fund*
Mean	0.001913564	0.0001148
Variance	0.000328446	5.16587E-05
Observations	36	36
df	35	35
F	6.357996887	
P(F<=f) one-tail	1.62642E-07	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
0.084107	2	68	0.91928

Market Neutral

Market Neutral Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.000180638	-0.000726454
Variance	5.94996E-05	4.46281E-05
Observations	36	36
Hypothesized Mean Difference	0	
df	69	
t Stat	0.533359059	
P(T<=t) one-tail	0.297749477	
t Critical one-tail	1.667238549	
P(T<=t) two-tail	0.595498955	
t Critical two-tail	1.994945415	

F-Test Two-Sample for Variances		
	Mutual Funds	*Hedge Funds*
Mean	0.000180638	-0.000726454
Variance	5.94996E-05	4.46281E-05
Observations	36	36
df	35	35
F	1.333230567	
P(F<=f) one-tail	0.199543104	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
0.691167	2	68	0.504476

Long / Short Equity

Long/Short Equity Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.004024929	0.005247741
Variance	0.000187396	0.000196147
Observations	36	36
Hypothesized Mean Difference	0	
df	70	
t Stat	-0.374631455	
P(T<=t) one-tail	0.354533574	
t Critical one-tail	1.666914479	
P(T<=t) two-tail	0.709067148	
t Critical two-tail	1.994437112	

F-Test Two-Sample for Variances		
	Mutual Funds	*Hedge Funds*
Mean	0.005247741	0.004024929
Variance	0.000196147	0.000187396
Observations	36	36
df	35	35
F	1.046695526	
P(F<=f) one-tail	0.446688325	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
0.208207	2	68	0.812555

Non-Traditional Bond

Nontraditional Bond Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.003715381	0.001028575
Variance	7.56922E-05	3.23214E-05
Observations	36	36
Hypothesized Mean Difference	0	
df	60	
t Stat	1.551131212	
P(T<=t) one-tail	0.063064694	
t Critical one-tail	1.670648865	
P(T<=t) two-tail	0.126129388	
t Critical two-tail	2.000297822	

F-Test Two-Sample for Variances		
	Hedge Funds	*Mutual Funds*
Mean	0.003715381	0.001028575
Variance	7.56922E-05	3.23214E-05
Observations	36	36
df	35	35
F	2.34185996	
P(F<=f) one-tail	0.006884396	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
13.73465	2	68	9.77E-06

Multi-Alternative

Multi-Alternative Comparison Results		
	Hedge Funds	*Mutual Funds*
Mean	0.001421193	0.001674564
Variance	1.99915E-05	0.000101577
Observations	36	36
Hypothesized Mean Difference	0	
df	48	
t Stat	-0.137879079	
P(T<=t) one-tail	0.445456383	
t Critical one-tail	1.677224196	
P(T<=t) two-tail	0.890912767	
t Critical two-tail	2.010634758	

F-Test Two-Sample for Variances		
	Mutual Fund	*Hedge Fund*
Mean	0.001674564	0.001421193
Variance	0.000101577	1.99915E-05
Observations	36	36
df	35	35
F	5.08100054	
P(F<=f) one-tail	2.73318E-06	
F Critical one-tail	1.757139526	

Chow Test			
F Value	DF 1	DF 2	P Value
0.613592	2	68	0.544385

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